

Rapid Watershed Assessment Kiskiminetas Watershed

Rapid watershed assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments help landowners and local leaders set priorities and determine the best actions to achieve their goals.





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Preface

The Natural Resources Conservation Service (NRCS) is initiating rapid watershed assessments in order to increase the speed and efficiency generating resource information to guide conservation implementation, as well as the speed and efficiency of putting it into the hands of local decision makers. While these rapid assessments provide less detail and analysis than full-blown studies and plans, they do provide a foundation for watershed studies or area planning. In addition, the assessments provide the benefits of NRCS locally-led planning for resource conservation and conservation program implementation in less time and at a reduced cost than more complex studies.

Rapid watershed assessments will be valuable for Farm Bill program delivery, and provide useful information for county, watershed and regional planners. These assessments provide initial estimates of where conservation investments would best address the concerns of landowners, conservation districts, and other community organizations and stakeholders. These assessments can help landowners and local leaders set priorities and determine the best actions to achieve their goals.

To produce the assessments, quantitative and qualitative data is collected and organized to create a watershed profile using Geographic Information System (GIS) technology. The data is analyzed to allow resource concerns and conditions to become apparent, and to generate maps and information to help people make better decisions about conservation needs and programs.

/s/ Craig R. Derickson
Pennsylvania State Conservationist





Introduction

The Kiskiminetas Watershed is located in Western Pennsylvania in portions of Armstrong, Indiana, and Westmoreland Counties. The Kiskiminetas Watershed is slightly over 330,000 acres in size, of which over 65,000 acres is cropland. Three Service Centers of the Natural Resources Conservation Service, three county Conservation Districts and portions of the Penn's Corner and the Southern Alleghenies Resource Conservation and Development Council provide conservation assistance in this watershed.



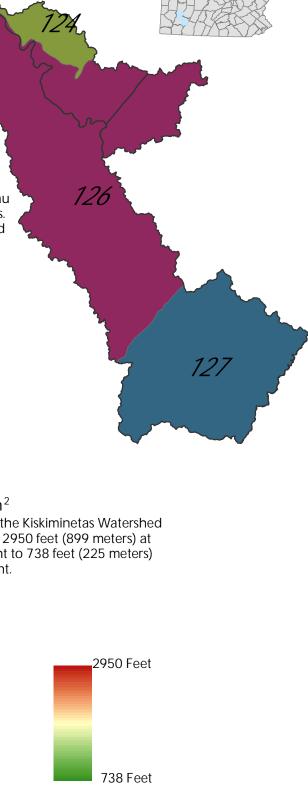


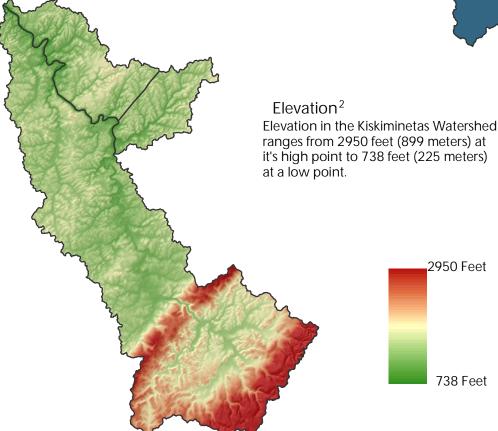
Common Resource Area (CRA)1

124 - Western Allegheny Plateau: This CRA is on a dissected plateau that consists of narrow, level valley floors, rolling ridge tops, and hilly to steep ridge slopes. Soils are moderately deep to very deep, excessively drained to somewhat poorly drained, and loamy. Most farms in the area are for hay and feed grain.

<u>127 - Eastern Allegheny Plateau and Mountains:</u> This CRA is on a dissected plateau with steep slopes and level to gently rolling areas in the northern part. Soils are moderately deep to very deep, excessively drained to somewhat poorly drained, and loamy. Corn, small grain, and feed for diary and beef cattle are the principle crops grown.

126 - Central Allegheny Plateau: This CRA is on a dissected plateau that is underlain mainly by horizontally bedded sedimentary rocks. Narrow, level valleys and narrow, sloping ridge tops are separated by long, steep and very steep side slopes. Soils are mainly shallow to very deep, excessively drained to somewhat poorly drained, and skeletal to clayey. Most farms in the CRA are beef cattle and diary farm operation.

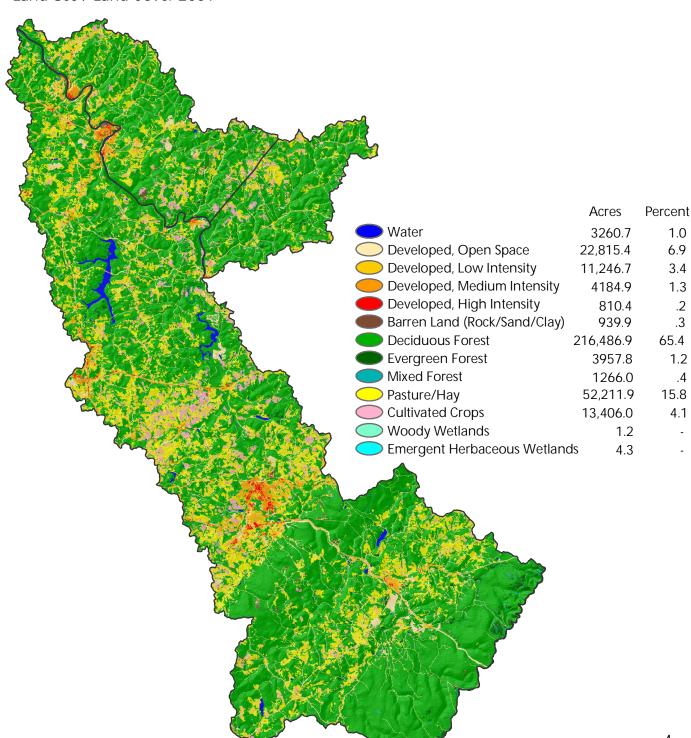




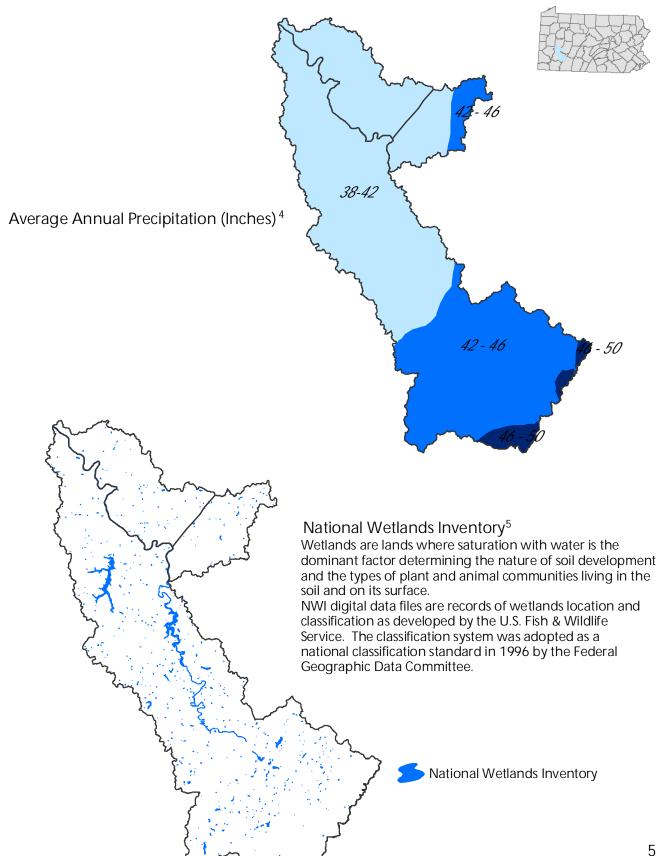
















Impaired Streams⁶

Nutrients

Siltation

Nutrients and Siltation

Streams

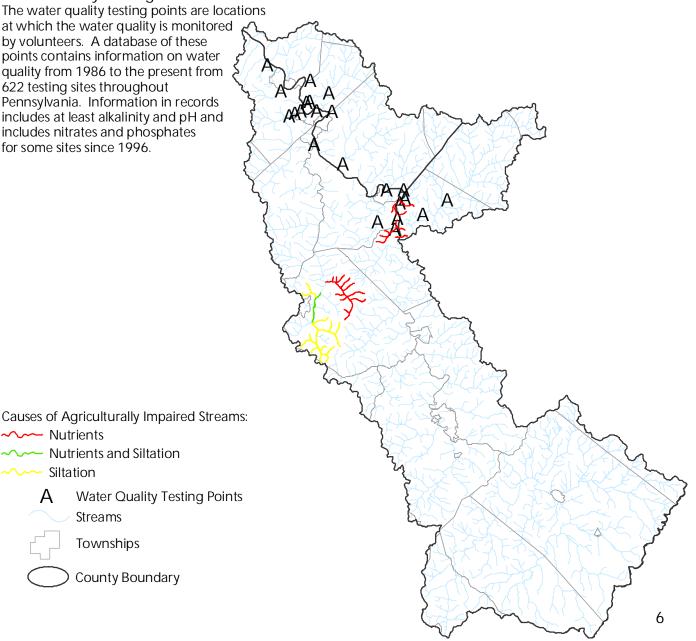
Townships

County Boundary

The Streams Integrated List (2006)represents stream assessments in an integrated format for the Clean Water Act Section 305(b) reporting and Section 303(d) listing. PA Department of Environmental Protection protects 4 stream water uses: aquatic life, fish consumption, potable water supply, and recreation. The 305(b) layers represents stream segments that have been evaluated for attainment of those uses and determine which streams are non-attaining.

Water Quality Testing Points⁷

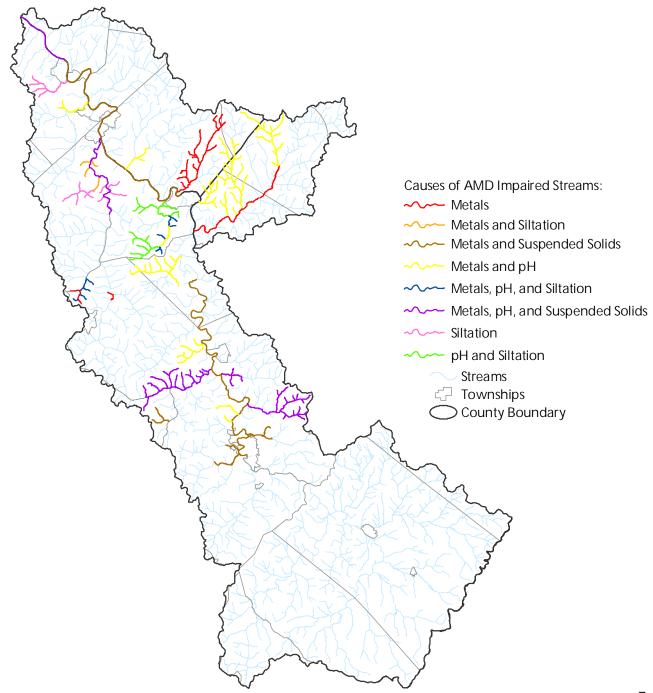
The water quality testing points are locations at which the water quality is monitored by volunteers. A database of these points contains information on water quality from 1986 to the present from 622 testing sites throughout Pennsylvania. Information in records includes at least alkalinity and pH and includes nitrates and phosphates for some sites since 1996.







Abandoned Mine Drainage Impaired Streams





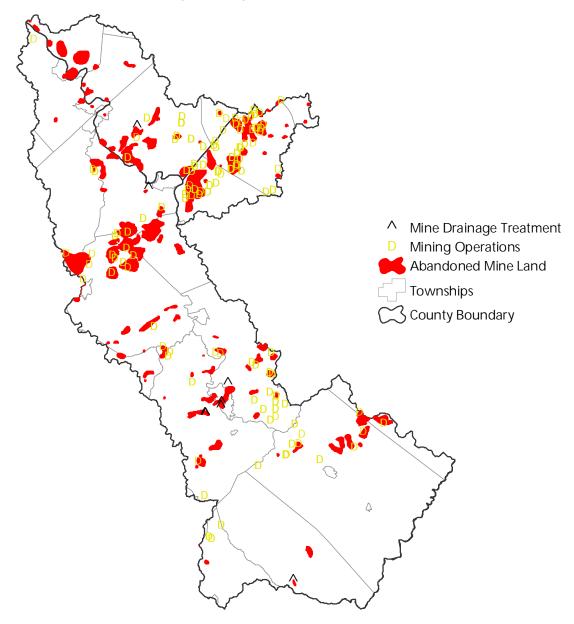


Abandoned Mine Land⁸

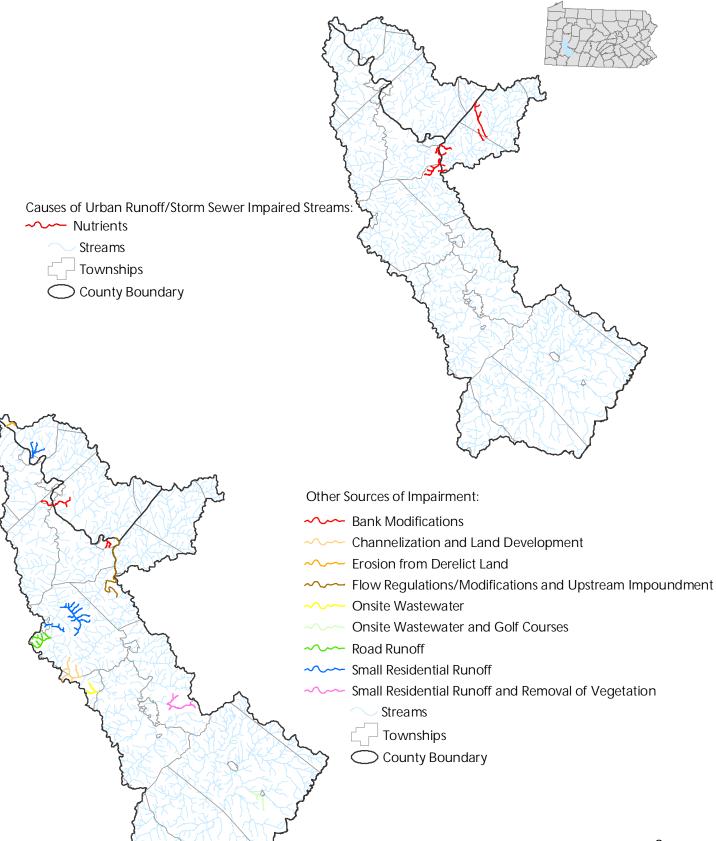
Coal mining in Pennsylvania began in the mid-1700's. Pennsylvania is the fourth largest coal producer in the United States, producing over 69.5 million tons in 1995 in 878 mining operations.

The environmental legacy of hundreds of years of coal mining in PA includes over 2,400 miles of PA's 84,000 miles of streams effected by acid mine drainage from old coal mining operations. Acid mine drainage in the single largest source of water pollution in the state.

Since 1967, Pennsylvania and the federal government have invested close to \$500 million to correct problems from abandoned surface and deep mines. There are acid mine drainage treatment plants around the state to treat acid mine drainage discharges.





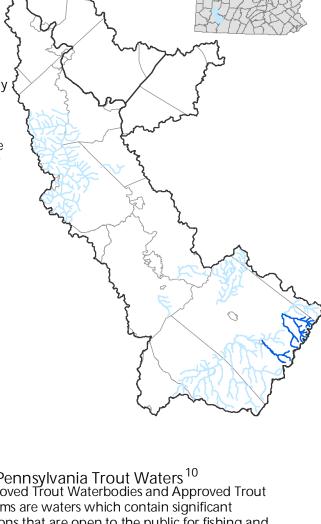


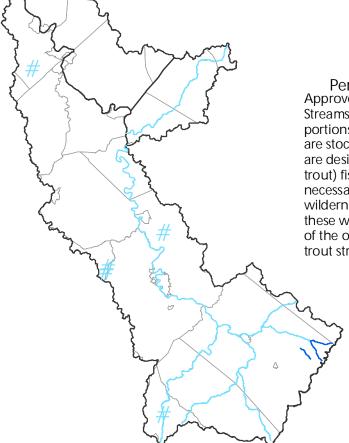


Exceptional Value and High Quality Streams⁹

In accordance to Chapter 93 of Pennsylvania Code, streams with excellent water quality may be designated High Quality Waters (HQ) or Exceptional Value Waters (EV). The water quality in an HQ stream can be lowered only if a discharge is the result of necessary social or economic development, the water quality criteria are met, and all existing uses of the stream are protected. EV waters are to be protected at their existing quality; water quality shall not be lowered.

Exceptional Value StreamsHigh Quality StreamsTownshipsCounty Boundary





Pennsylvania Trout Waters ¹⁰
Approved Trout Waterbodies and Approved Trout Streams are waters which contain significant portions that are open to the public for fishing and are stocked with trout. Wilderness Trout Streams are designed to protect and promote native (brook trout) fisheries, the ecological requirements necessary for natural reproduction of trout and wilderness aesthetics. The superior quality of these watersheds is considered an important part of the overall angling experience on wilderness trout streams.

Approved Trout Waterbodies
Approved Trout Streams
Wilderness Trout Streams
Townships
County Boundary



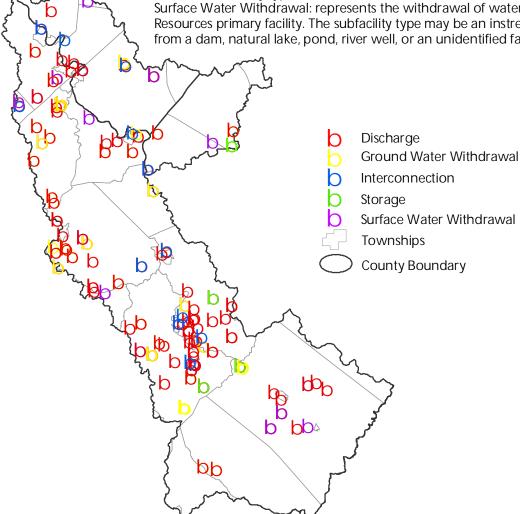


Water Resource Points 11

A Water Resource is a DEP primary facility type related to the Water Use Planning Program. The sub-facility types related to Water Resources that are included are: Discharge: represents the return of water used at a Water Resources primary facility. The subfacility type may be a sewage treatment plant, instream discharge, spray irrigation field, groundwater recharge, on-lot septic or an unidentified facility type. Ground Water Withdrawal: represents the withdrawal of water used at a Water Resources primary facility. The subfacility type may be a well, spring, quarry, infiltration gallery, deep mine, surface mine or an unidentified facility type. Interconnection: represents the point of interconnection between Water Resources primary facilities. The subfacility type may be for an interconnection between two public water supply agencies or between a public water supply agency and a commercial or industrial water user.

Storage: represents the storage of water used at a Water Resources primary facility. The subfacility type represents raw or treated water storage and may be a guarry, standpipe, open off-stream reservoir, closed off-stream reservoir, instream reservoir, hydroelectric dam, natural lake, pond, silt dam, hydroelectric pumped storage or an unidentified facility type.

Surface Water Withdrawal: represents the withdrawal of water used at a Water Resources primary facility. The subfacility type may be an instream diversion, intake from a dam, natural lake, pond, river well, or an unidentified facility type.





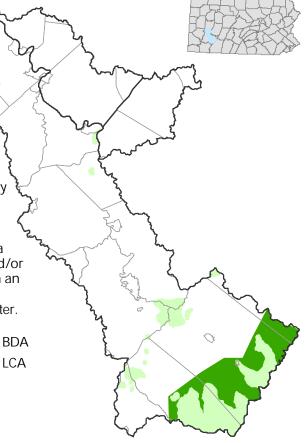
Natural Heritage Inventory Sites¹²

These areas are intended to identify outstanding floral, faunal, and geologic features, including natural communities (habitats) and locations of animal and plant species of special concern (endangered, threatened, or rare).

Natural Heritage Inventory sites types include:

BDA - Biological Diversity Area - an area containing plants or animals of special concern at state or federal levels, exemplary natural communities, or exceptional native diversity. BDAs include both the immediate habitat and surrounding lands important in the support of these special elements.

LCA - Landscape Conservation Area - a large contiguous area that is important because of its size, open space, habitats, and/or inclusion of one or more Biological Diversity Areas. Although an LCA includes a variety of land uses, it typically has not been heavily disturbed and thus retains much of its natural character.



Pennsylvania Breeding Bird Atlas 13

The 1st Pennsylvania Breeding Bird Atlas (1992) assesses the distribution of breeding birds across the state. The areas below are confirmed breeding areas for species. Fourteen birds species from Pennsylvania's state Wildlife Action Plan associated with agricultural landscapes were focused on in this assessment, not all have confirmed breeding area in this watershed.

- # American Woodcock
 - Bobolink
- Eastern Meadowlark



Important Bird Areas¹⁴

Important Bird Areas (IBA) are sites that provide essential habitat for one or more species of bird. IBAs include sites for breeding, wintering, and/or migrating birds. IBAs may be a few acres or thousands of acres, but usually they are discrete sites that stand out from the surrounding landscape. IBAs may include public or private lands, or both, and they may be protected or unprotected.

Important Bird Areas
Townships

County Boundary

Powdermill Nature Reserve

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Important Mammal Areas ¹⁵
The Important Mammal Areas Project is being carried out by a broad based alliance of sportsmen, conservation organizations, wildlife professionals, and scientists. The primary concern is to help ensure the future of Pennsylvania's wild mammals, both game and non-game species. Although particular attention is given to species of special concern, they are also interested in habitats that simply have high mammal diversity. Because a commitment to preserve natural heritage requires understanding the needs of native species, they also identify places where people can learn about mammals and enjoy them in their natural environment.

Important Mammal Areas
Townships
County Boundary

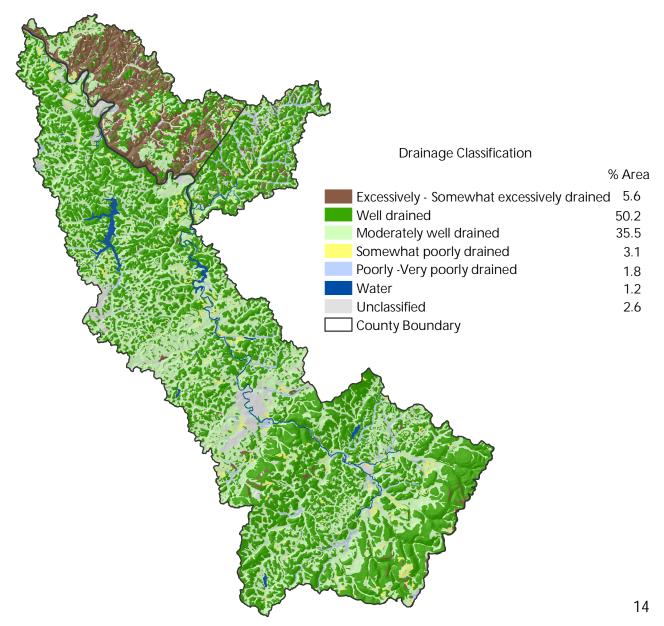


Soils 16



Drainage Classification

Drainage class (natural) refers to the frequency and duration of wet periods under conditions similar to those under which the soil formed. Alterations of the water regime by human activities, either through drainage or irrigation, are not a consideration unless they have significantly changed the morphology of the soil. Seven classes of natural soil drainage are recognized -- excessively drained, somewhat excessively drained, well drained, moderately well drained, somewhat poorly drained, poorly drained, and very poorly drained. These classes are defined in the "Soil Survey Manual."

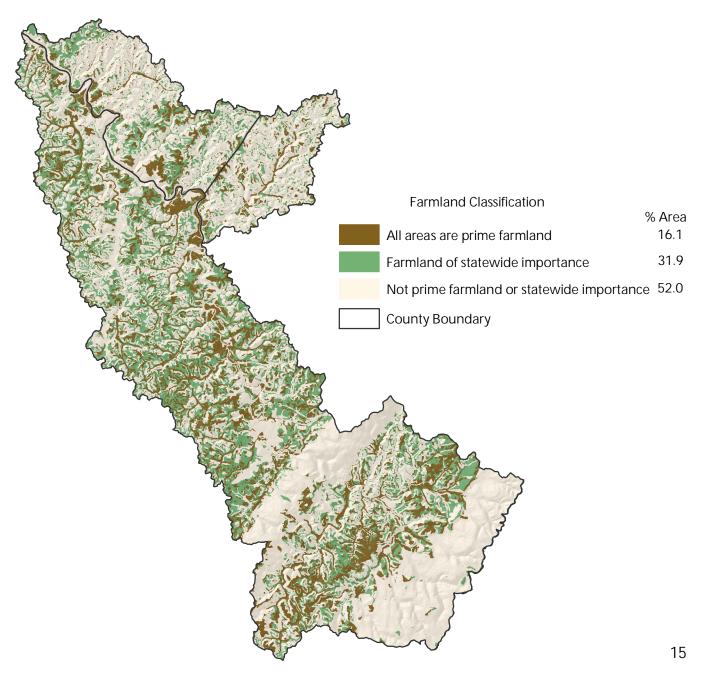






Farmland Classification

Farmland classification identifies soil map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. Farmland classification identifies the location and extent of the most suitable land for producing food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the Federal Register, Vol. 43, No. 21, January 31, 1978.



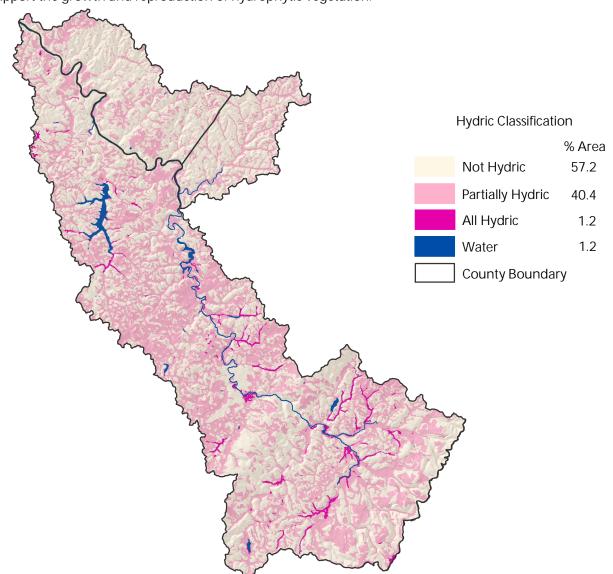




Hydric Soil Classification

This rating provides an indication of the proportion of the map unit that meets criteria for hydric soils. Map units that are dominantly made up of hydric soils may have small areas, or inclusions, of nonhydric soils in the higher positions on the landform, and map units dominantly made up of nonhydric soils may have inclusions of hydric soils in the lower positions on the landform.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). These soils, under natural conditions, are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

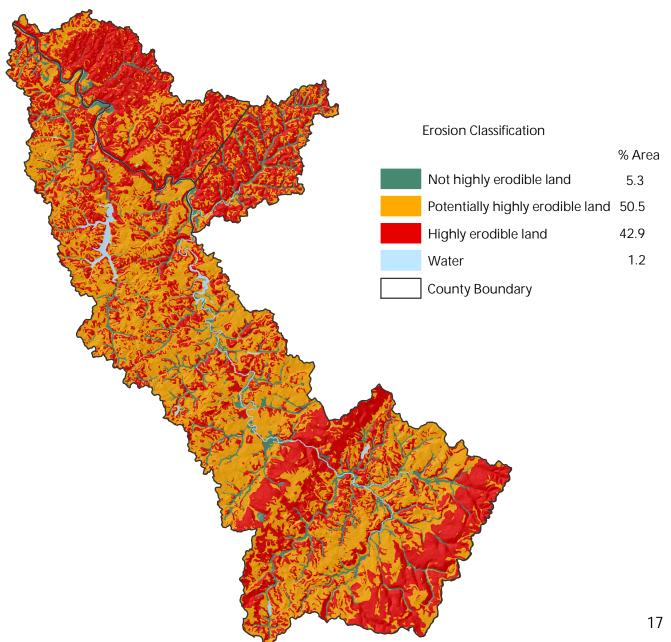






Highly Erodible Land

A soil map with an erodibilty index (EI) of 8 or greater is considered to be highly erodible land (HEL). The EI for a soil map unit is determined by dividing the potential erodibility for the soil map unit by the soil loss tolerance (T) value established for the soil in the FOTG as of January 1, 1990. Potential erodibility is based on default values for rainfall amount and intensity, percent and length of slope, surface texture and organic matter, permeability, and plant cover. Actual erodibility and EI for any specific map unit depends on the actual values for these properties.

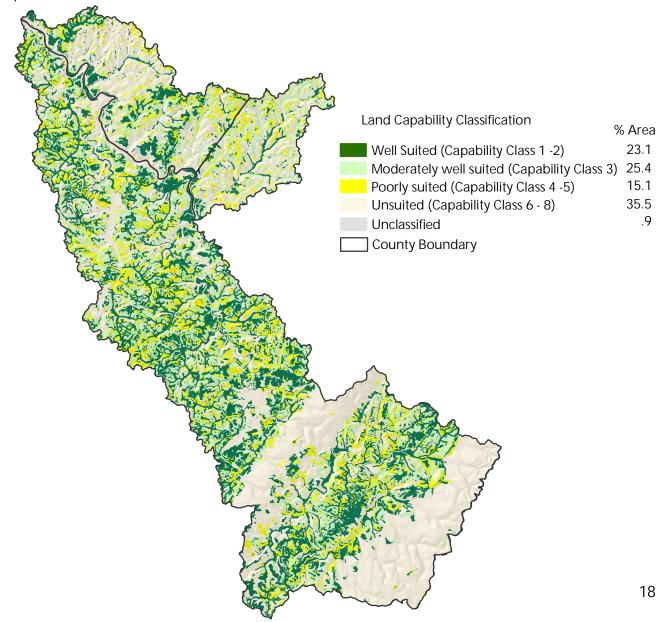




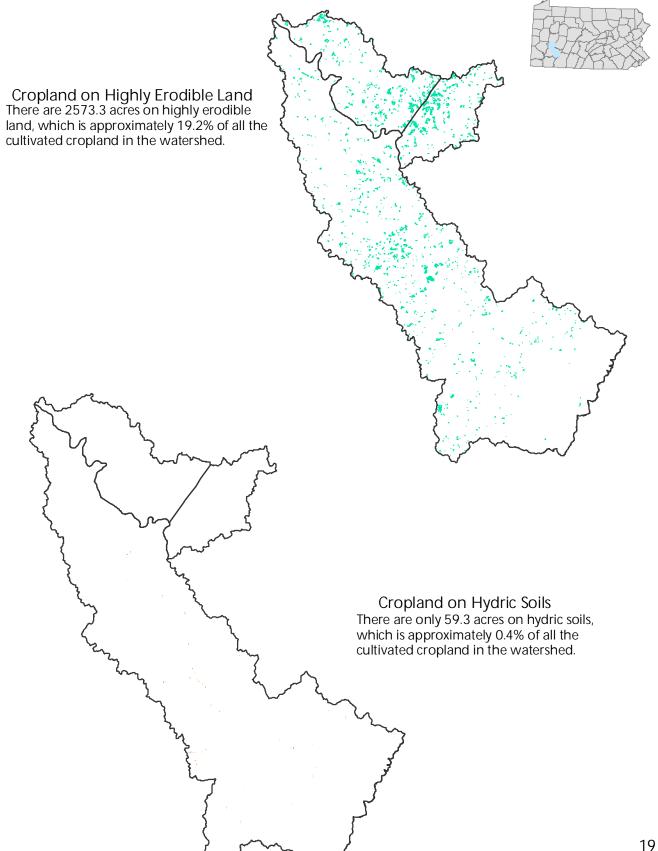


Land Capability Classification

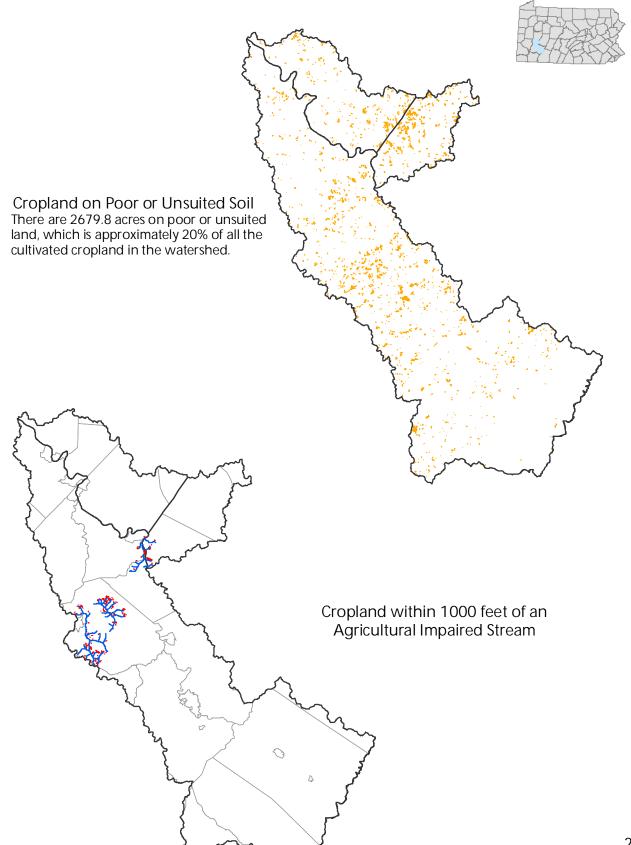
Land capability classification shows, in a general way, the suitability of soils for most kinds of field crops. Crops that require special management are excluded. The soils are grouped according to their limitations for field crops, the risk of damage if they are used for crops, and the way they respond to management. The criteria used in grouping the soils do not include major and generally expensive landforming that would change slope, depth, or other characteristics of the soils, nor do they include possible but unlikely major reclamation projects. Capability classification is not a substitute for interpretations that show suitability and limitations of groups of soils for rangeland, for woodland, and for engineering purposes.















Resource Concerns

Major resource concerns in the area include:

- sheet and rill erosion
- streambank erosion
- streams affected impairment
- gullying
- surface compaction resulting from livestock
- reduction of organic matter on cropland
- subsidence resulting from mining
- land slippage

Conservation Practices

Common conservation practices for cropland:

- crop rotation
- contour farming
- nutrient management
- grassed and riparian forest buffers
- cover crops
- hayland planting
- diversions
- grassed waterways
- pest management

Common pasture management practices:

- watering systems
- fencing
- managing livestock access to streams
- pasture planting
- nutrient management





PRS Performance Measures 17

	FY99	FY00	FY01	FY02	FY03	FY04	FY05	FY06	Total
Total Conservation Systems Planned (acres)	424	1776	2438	2018	2167	NA	2673	2608	14,104
Total Conservation Systems Applied (acres)	197	1299	2141	2763	1912	NA	1738	1528	11,578
	Key Co	nservat	ion Trea	atments	<u> </u>				
Waste Storage Facility (number)	0	1	0	0	0	0	0	0	1
Riparian Forest Buffer (acres)	3	64	8	100	43	0	13	59	290
Erosion Control Total Soils Saved (tons/year)	0	646	586	1020	887	NA	NA	NA	3,139
Nutrient Management (acres)	0	384	2050	728	57	0	20	138	3,377
Pest Management (acres)	0	0	0	0	0	0	0	0	С
Prescribed Grazing (acres)	16	360	199	673	133	57	509	269	2,216
Tree and Shrub Establishment (acres)	0	15	33	48	0	0	0	45	141
Residue Management (acres)	145	521	499	558	809	0	452	389	3,373
Wildlife Habitat (acres)	0	88	129	89	121	38	303	359	1,127
Wetlands Created, Restored, or Established	0	4	3	7	0	0	13	29	56
	Acres in	Conser	vation F	Progran	าร				
Conservation Technical Assistance									
Planned	354	827	1794	1575	1725	NA	1786	1498	9,559
Applied	197	743	1896	1900	1424	NA	890	834	7,884
Conservation Reserve Program									
Planned	14	14	188	125	34	NA	516	606	1,497
Applied	0	0	188	140	28	NA	263	355	974
Environmental Quality Incentive Program									
Planned	382	50			36	NA	625	700	1,818
Applied	185		25	0	26	NA	163	438	1,040
Farmland Protection Policy/Farm and Ranch	Lands Pro	tection Pr	ogram						
Planned	204	338	268	0	284	NA	0		1,094
Applied	145	272	56	0	284	NA	0	0	757
Forestry Incentive Program									
Planned	0	0	15	39	0	NA	0	0	54
Applied	0	0	15	60	0	NA	0	0	75
Grasslands Reserve Program									
Planned				0	0	NA	0	0	0
Applied				0	0	NA	0	0	0
Grazing Lands Conservation Initiative									
Planned	206		372						766
Applied	52	67	287						406
Wildlife Habitat Incentive Program		ı			1				
Planned	0		_	-			122	44	166
Applied	0	0	0	0	5	NA	0	68	73
Wetlands Reserve Program									
Planned	0						0	-	0
Applied	0	0	0	0	0	NA	0	0	0

NA - Reporting was unavailabel by Hydrologic Unit Code





Social and Census Data 18

	Armstrong	ndiana	Westmoreland	Total
Farmer (accorder a)			-	
Farms (number)	78	46	525	649
Land in farms (acres)	13,717	8,022	58,575	80314
Total cropland (acres)	8,674	4,643	40,182	53499
Principal operator by primary occupation - Farming	39	22	252	212
(number)		22	252	313
Farms by Size		-		
1 to 9 acres	3	2	48	53
10 to 49 acres	13	9	144	166
50 to 179 acres	39	23	245	307
180 to 499 acres	17	9	73	99
500 to 999 acres	4	2	11	17
1,000 acres or more	2	1	2	5
Livestock and Po	ultry			
Cattle and calves inventory (farms)	42	23	250	315
Cattle and calves inventory - Beef cows (farms)	32	13	173	218
Cattle and calves inventory - Milk cows (farms)	7	8	43	58
Hogs and pigs inventory (farms)	6	3	40	49
Sheep and lambs inventory (farms)	4	4	35	43
Layers 20 weeks old and older inventory (farms)	6	4	48	58
	0		7	
Broilers and other meat-type chickens sold (farms)	-	1	/	8
Crops Harveste	ed			
Corn for grain (acres)	1062	635	5664	7361
Corn for silage or greenchop (acres)	381	260	1551	2192
Wheat for grain, all (acres)	173	72	906	1151
Oats for grain (acres)	319	311	1369	1999
Barley for grain (acres)	81	29	198	308
Soybeans for beans (acres)	284	211	2374	2869
Forage - land used for all hay and all haylage, grass				
silage, and greenchop (acres)	4,372	1,757	15,810	21939
Vegetables harvested for sale (acres)	16	60	419	495
Land in orchards (acres)	14	10	66	90
Total cropland harvested (acres)	6,827	3,921	28,508	39256
Farm Operator by E	thnicity			
White	115	67	750	932
Black or African American	0	0	5	5
Asian	0	0	0	0
Hispanic	0	0	9	9
American Indian/Alaskan Native	0	0	0	0
Pacific Islander	0	0	0	0
Women	28	16	211	255





Partnership Groups:

A cooperative project involving NRCS and conservation partners, including:

- State Conservation Commission
- Pennsylvania Department of Environmental Protection
- Pennsylvania Game Commission
- Pennsylvania Grazing/Forage Lands Conservation Coalition
- Pennsylvania Fish & Boat Commission





Footnotes/Bibliography

All data is provided "as is". There is no warranties, express or implied, including the warranty of fitness for a particular purpose, accompanying this document. Use for planning purpose only.

1. Common Resource Area

Common Resource Area (CRA) delineation is defined as a geographical area where resource concerns, problems, or treatment needs are similar. More information can be found online at http://soils.usda.gov/survey/geography/cra.html

2. National Elevation Dataset (NED)

The NED is a seamless mosaic of the best-available elevation data. The primary source data were the USGS 7.5-minute (30-meter or 10-meter resolution) DEM's. A hillshade grid was also created using the DEM and used to creare a 3-D effect. More inforantion on NED can be found online at http://ned.usgs.gov/

3. Land Use / Land Cover 2001

Land Use / Land Cover map was created using the National Land Cover Dataset. The National Land Cover Dataset was compiled from Landsat satellite TM imagery with a spatial resolution of 30 meters and supplemented by various ancillary data (where available). More inforamtion can be found online at http://landcover.usgs.gov/

4. Average Annual Precipitation

The average annual precipitation data for this map layer were produced through a partnership between NRCS and the Spatial Climate Analysis Service at Oregon State University (OSU). The average annual precipitation is from 1961 through 1990. More information can be found online at http://www.ncgc.nrcs.usda.gov/products/datasets/climate/index.html

5. National Wetlands Inventory (NWI)

The NWI maps do not show all wetlands since the maps are derived from aerial photointerpretation with varying limitations due to scale, photo quality, inventory techniques, and other factors. More information can be found online at http://www.fws.gov/nwi/

6. Impaired Streams

Impaired Streams were derived from Pennsylavania Department of Protection Office of Water Management, 2006 list on Non-Attaining Streams. More information can be found on DEP website at http://www.depweb.state.pa.us/dep/site/default.asp

7. Water Quality Testing Points

Water Quality Testing Points monitor water quality with emphasis on stream acidity in Pennsylvania with an assoiciated database. The database contains more than 33,466 records on water quality from 1986 to the present from 622 testing sites throughout Pennsylvania. Information in the records includes alkalinity and Ph and includes nitrates and phosphates for some sites since 1996. The information is maintained by the Alliance for Aquatic Resource Monitoring. More information can be found online at http://alpha.dickinson.edu/storg/allarm/allarm%20projects/database.htm





Footnotes/Bibliography

8. Abandoned Mine Land

Abandoned Mine Land data was received from the Office of Surface Mining. The data set shows the approximate location of Abandoned Mine Land Problem Areas containing public health, safety, and public welfare problems created by past coal mining. More information can be found online at http://www.osmre.gov/osmaml.htm

9. Exceptional Value and High Quality Streams

Exceptional Value and High Quality Streams were taken from the Chapter 93 data layer received from Pennsylvania Department of Environmental Protection. For more information on what qualifies a stream as exceptional value or high quality or any information on Chapter 93 streams go to http://www.pacode.com/secure/data/025/chapter93/chap93toc.html

10. Pennsylvania Trout Waters

Pennsylvania Trout Water data is compiled by the Pennsylvania Fish and Boat Commission. This layer was created based on the 1:24000 National Hydropahy Dataset (NHD) water bodies layer. More information can be found online at

http://www.fish.state.pa.us/fishpub/summary/troutwaters.html

11. Water Resource Points

A Water Resource is a DEP primary facility type related to the Water Use Planning Program. More information can be found http://www.depweb.state.pa.us/dep/site/default.asp

12. Natural Heritage Inventory Sites

The Natural Areas polygons were developed by the Pennsylvania Natural Heritage Program (PNHP) County Natural Heritage Inventory (CNHI) Program. Natural Areas were identified using map and air photo interpretation, aerial rconnaissance, and field surveys. More information and county reports can be found online at http://www.naturalheritage.state.pa.us/

13. Pennsylvania Breeding Bird Atlas

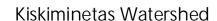
Data was taken for the 1st Pennsylvania Breeding Bird Atlas (1992). For this watershed assessment, fourteen bird species were chosen to be focused on. More information about all bird species can be obtained at http://www.carnegiemnh.org/atlas/home.htm

14. Important Bird Areas

The Important Bird Areas Program (IBA) is a global effort to identify and conserve areas that are vital to birds and other biodiversity. For more information nationally and/or on the state level go to http://www.audubon.org/bird/iba/

15. Important Mammal Areas

Important Mammal Areas Project, IMAP, the first program of it's kind, was created by the Mammal Technical Committee of the Pennsylvania Biological Survey (PaBS). For more inforamtion go online to http://www.pawildlife.org/imap.htm







Footnotes/Bibliography

16. Soils

Soil Survey spatial and tabular data were used for the following survey areas: Armstrong County (PA005)

Indiana County (PA063)

Westmoreland County (PA129)

Spatial and tabular data an be downloaded athttp://soildatamart.nrcs.usda.gov/

17. Performance Results System (PRS)

PRS data was extracted from PRS by year, conservation system, conservation practice, and proagrams by hydrologic unit code. More information can be found online at the PRS homepage http://ias.sc.egov.usda.gov/prshome/

18. Social and Census Data

Ag census data and ethnicity data were downloaded from the National Agricultural Statistics Service (NASS). The data was adjusted by percent of Hydrologic unit in the county. More inforamtion can be found online at http://www.nass.usda.gov/Census_of_Agriculture/index.asp

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